BAA 03-13

Radiation Decontamination
Proposer Information Pamphlet

February 25, 2003

U.S. Department of Defense
Defense Advanced Research Projects Agency
Special Projects Office

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1 PROPOSER INFORMATION

The Defense Advanced Research Projects Agency (DARPA) often solicits research efforts through the Broad Agency Announcement (BAA). The BAA is announced in the Federal Business Opportunities (FedBizOpps), a website (www.fedbizopps.gov) sponsored by the General Services Administration (GSA). The following information is for parties interested in responding to BAA 03-13, Radiation Decontamination.

It is the policy of DARPA to treat all proposals as competitive information and to disclose the contents only for the purposes of evaluation. The Government evaluation team will consist of Government personnel from DARPA and other Government agencies. For this solicitation, non-Government advisors, who have signed appropriate non-disclosure and conflict of interest statements, may assist in the proposal administration and review process when their particular expertise is required; however, they will not participate in the final source selection process.

DARPA requires that all parties interested in participating in this BAA register their organization by providing a principal point of contact, phone number, fax, and email to BAA03-13@darpa.mil with the subject line: "Radiation Decontamination POC INFORMATION".

2 PROGRAM BACKGROUND AND GOALS

2.1 Threat

The threat exists that a terrorist group will set off a Radiological Dispersal Device (RDD), a so-called dirty bomb, generating a cloud of radioactive particles on or upwind of a military installation. The main threat of an RDD is not that the levels of radiation will be immediately toxic but that a large area will be contaminated and untenable due to the risk of long-term radiation effects from the radioactive particles that settle out. The current planned approach to decontaminating buildings consists of demolishing them and hauling away the rubble. If critical military buildings are among those contaminated, an RDD could have a devastating impact on our ability to maintain the required operational tempo. In addition the demolition process turns what started as grams or kilograms of radioactive material into millions of tons of contaminated waste, which would vastly overwhelm the capacity of the radioactive material disposal sites currently in use.

The overall goal of DARPA's Radiation Decontamination (RD) program is to develop a system of technologies that will allow for the detection, decontamination and controlled clean-up of radioactively contaminated buildings and military bases located downwind from an RDD event so that they can safely be reoccupied for military use. For this purpose the threshold of contamination that is considered safe corresponds to an absorbed radiation of 1 milliSievert/year at a distance 1 meter from the building surface.

To accomplish this goal, we require technologies to detect radioactive material dispersed on building surfaces, as well as new decontamination technologies for cleanup. These

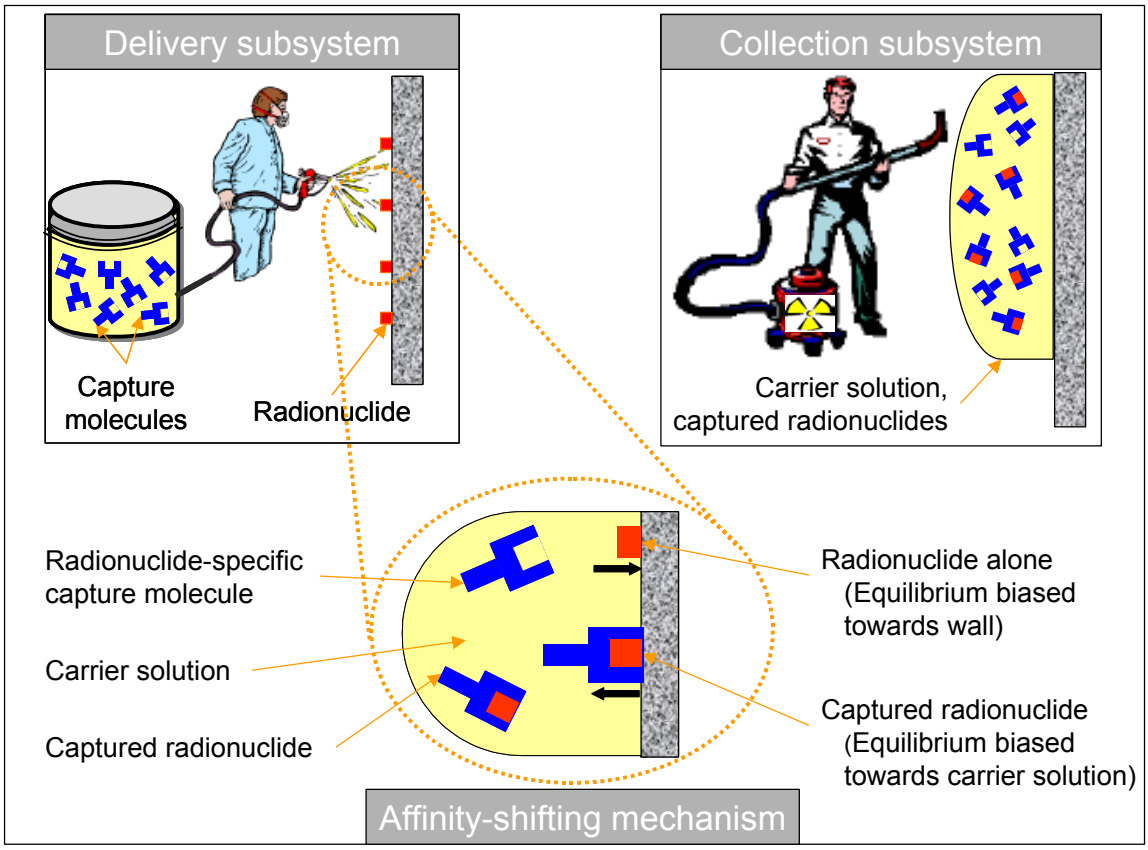

Figure 1: End-to-end Decontamination System. The elements of a notional decontamination system are shown here for the purpose of clarifying the text in this PIP. Other approaches may be proposed.

areas are the subject of BAA 03-13, and this PIP describes instructions for bidders interested in responding to the BAA. Work under this BAA 03-13 is divided into two elements, each with multiple phases: Radionuclide Capture Decontamination (RCD), and Wide Area Radionuclide Detection (WARD). Future DARPA interests may include novel technologies for efficiently separating the radioactive isotopes collected during the decontamination process; however, this is not the focus of the present investment.

2.2 Radionuclide Capture Decontamination Overview

RCD performers will develop a system to remove radioactive contamination from building materials. The threat radionuclides are generally metals and many of these metals are highly reactive. Therefore, the radioactive particles have an affinity for the surface of building materials that is higher than that for water. In that case, water is ineffective for decontamination because any radionuclides that are dislodged do not remain suspended in the water but return to bind on the surface of the building materials. RCD performers will develop and demonstrate their general approach as described here. (For the purpose of clarity within this PIP, the major elements of a notional decontamination system are shown schematically in Fig. 1 and discussed below. Bidders

may propose other approaches that replace all or some of the elements identified here if they deem that the most effective way to achieve the program goal; in that event, bidders should propose a program that uses a phased approach in proving the feasibility of their technique that is consistent with the steps described below for the notional approach shown in Fig. 1.)

RCD performers will develop a method to shift the equilibrium point for the radionuclides from being biased towards the building surface to being biased towards the carrier solution. This shift in affinity may be achieved, for example, by using capture molecules that bind radionuclides avidly and specifically; other approaches may also be proposed. The carrier solution, which holds this affinity-shifting mechanism, must allow for both the delivery of the affinity-shifting mechanism to the contaminated surface and the subsequent collection of the captured radioactive particles. The carrier solution could be a spray or foam solution, or it may be another approach suited to the program goal. Once the radionuclides are captured in the carrier solution, the process used to re-collect the carrier solution must not contaminate soil or ground water. The delivery and collection system must be safe for first responder use, and not allow for recontamination of surfaces or re-aerosolization of contamination. Performers under RCD will develop all elements of the end-to-end decontamination system.

2.3 Wide Area Radionuclide Detection Overview

Today, to identify contaminated areas, we would rely on handheld detectors (such as Geiger-Muller detectors). This approach would be very time-consuming and personnel intensive if it were applied to large areas downwind of an RDD. Under WARD, performers will develop technologies that are suited to quickly identifying which areas on large military installations are contaminated to levels that pose a health risk. (For the purpose of specificity and clarity within this PIP, the major elements of a notional detection system are shown schematically in Fig. 2 and discussed below. Bidders may propose other approaches that replace all or some of the elements identified here if they deem that the most effective way to achieve the program goal; in that event, bidders should propose a program that uses a phased approach in proving the feasibility of their technique that is consistent with the steps described below for the notional approach shown in Fig. 2.)

An “identification” mechanism is required to recognize the presence of the radioisotope; this could, for example, be a capture molecule that binds specifically with the radionuclide, or it could be any other mechanism as selected by bidders. A “reporter” mechanism is needed to transduce the identification event into a signal that can be captured by the detector subsystem. That subsystem could be active or passive, as appropriate to the reporting mechanism. Finally, an application subsystem may be required to bring the identification and reporting mechanisms to the radionuclides, and those may be carried in a carrier solution. WARD performers will develop all elements of the end-to-end detection system, using these elements or others as best suited to their approach.

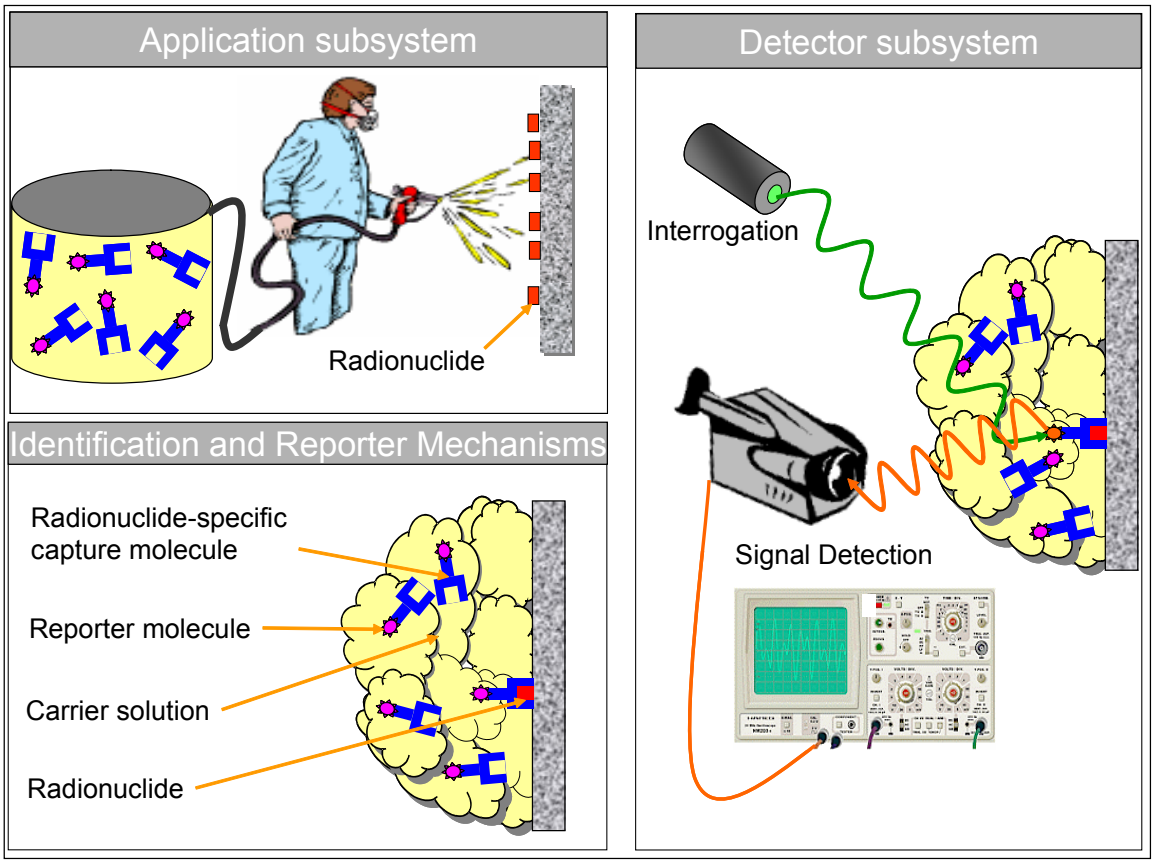

Figure 2: End-to-end Detection System. The elements of a notional detection system are shown here for the purpose of clarifying the text in this PIP. Other approaches may be proposed.

Within the requirement to detect contamination levels down to the human-health threshold, particular emphasis within WARD is placed on the ability to survey large, city-scale areas quickly; to correctly recognize contaminated areas without being overwhelmed by false alarms; and to develop a detection system that is safe.

Bidders may submit proposals under one or both of the two program elements described here (RCD, WARD). If submitting proposals for both program elements, two separate proposals must be filed. §7.1.5 and §7.2.4 contain specific instructions for bidders responding to both elements with proposals that are closely related.

2.4 Other Topics

Bidders may also submit proposals related to other aspects of the RDD problem, if they represent high-risk, high-payoff technologies that could dramatically improve our ability to respond to this threat. These may be stand-alone proposals or separately priced options included with an RCD or WARD proposal.

3 TECHNICAL SCOPE AND OBJECTIVES

3.1 Radionuclide Capture Decontamination (RCD)

There will be three phases for the RCD element. Phase I is small batch testing; Phase II is scale-up manufacturing of chemicals as well as design and build for delivery and collection equipment; and Phase III is a full-scale demonstration of the technologies.

3.1.1 RCD, Phase I

During Phase I, performers will show proof-of-concept of the overall decontamination approach proposed in response to this BAA, by demonstrating the ability of their method to achieve decontamination to the required threshold for two radionuclides – Cobalt-60 and Cesium-137 – on three types of building surfaces – concrete, marble, and granite. This work has four major components. First, performers will refine their proposed approach for shifting the radionuclide affinity away from the building surface and toward the carrier solution carrying the affinity-shifting mechanism. Second, performers will develop a carrier solution that is compatible with this affinity-shifting technique and that retains the captured radionuclide in solution for collection. For both activities, performers will carry out a combination of small-scale (benchtop) testing, theory, and simulation as appropriate. Third, they will develop a performance model – based on the underlying chemical kinetics and surface physics, and supported by data from the benchtop testing – that predicts the effectiveness of the decontamination approach for the two radionuclides and three building surfaces above. They will also use this model to estimate the effectiveness for the remainder of the radionuclides and surfaces of interest in this program. Fourth, performers will use the results and lessons learned from Phase I to develop a detailed plan to carry out the work for Phase II (see §3.1.2).

At the end of Phase I, performers will present the results of these activities, including: experimental results from the benchtop tests that demonstrate the ability of their approach to decontaminate the three building surfaces from the two radionuclides; the synthesis pathways for the affinity-shifting mechanisms and the carrier solutions; an annotated performance model that describes the underlying physical basis of the model and includes a comparison with data from the benchtop tests; an estimate of the performance of their approach for the remaining threat radionuclides and building surface materials; and a detailed plan (SOW, schedule and cost) for Phase II.

One or more performers may be selected to continue into Phase II based on the ability of their approach to meet or exceed the program goal for decontamination (proven and estimated); the ability of their performance model to predict the observed measurements; and the appropriateness, clarity and thoroughness of the proposed Phase II plan.

3.1.2 RCD, Phase II

During Phase II, performers will prove the extension of their technique across the remaining radionuclides and building surfaces; demonstrate pilot-batch production of all required components; design and build the delivery and collection subsystems; and develop and cost the test plan for a full-scale demonstration of the end-to-end decontamination system during Phase III.

The list of threat radionuclides beyond Cobalt-60 and Cesium-137 is available separately (see §11). In addition to concrete, marble, and granite, the list of building surfaces for which decontamination must be demonstrated consists of glass, brick, sandstone, slate, paint, steel, aluminum, copper, wood, ceramic, caulk, and rubber. Performers will carry out the first three activities as in Phase I – extending the affinity-shifting method and carrier solution to the new radionuclides and building surfaces, and extending the performance model (including validating it with experimental data). In addition, performers will determine the extent to which the formulations for a single radionuclide and building surface material can be multiplexed with those for other radionuclides and/or surfaces.

Second, and in parallel with this effort, performers will develop the approaches required to scale up the decontamination methods developed during Phase I (Cobalt-60/Cesium-137 and concrete/marble/granite). They will demonstrate the validity and feasibility of their scaled-up process by: (1) producing one-kilogram batches of all of the materials required for their decontamination process; and (2) showing experimentally that it decontaminates to the required threshold.

Third, performers will design and build the subsystem(s) required to deliver the carrier solution containing the affinity-shifting mechanism to the surfaces of buildings and to recapture the solution at the end of the decontamination process. These may be separate and unrelated pieces of hardware, if appropriate to the decontamination method. Performers are responsible for developing the complete subsystem(s), including any elements not available off the shelf (e.g. a specialized control or regulation system, if required). During Phase II they must demonstrate that the delivery/collection subsystem(s) function as required.

Fourth, performers will develop a test plan for a full-scale demonstration of their decontamination system. The precise test location will be determined during Phase II; for the purposes of this PIP, bidders should assume the testing will be done on previously contaminated buildings at a Department of Energy site.

At the end of Phase II, performers will present the results of these activities, including: experimental results from the benchtop tests that demonstrate the ability of their approach to decontaminate the remainder of the surfaces from the complete list of threat radionuclides; the synthesis pathways for the affinity-shifting mechanisms and the carrier solutions, where different from those in Phase I; a comprehensive performance model that predicts the decontamination effectiveness of all pairs of radionuclides and building surfaces, and that includes annotations to describe the underlying physical basis and to provide a comparison between model predictions and benchtop test data; the synthesis process for the scaled-up production of the decontamination method; one-kilogram batches of all required materials, produced using the scaled-up production process; experimental results that document the decontamination ability of these scaled-up materials; the design of the delivery/collection subsystem(s), as built; the delivery/collection prototype devices and a demonstration that they function as required; and a detailed plan (SOW, schedule and cost) for the Phase III demonstration.

Some or all of the performers that successfully complete Phase II are expected to be selected for continuation into Phase III.

3.1.3 RCD, Phase III

A large-scale demonstration of the decontamination technology will be conducted on contaminated buildings. In addition, performers will complete the scale-up of their decontamination method to the remaining radionuclides and building surfaces. They will also carry out other acceptance testing as required for Government use, and will develop user manuals (manufacture, operations, maintenance, safety).

3.2 Wide Area Radionuclide Detection (WARD)

There will be three phases for the WARD element. Phase I is small scale testing and development of the detection system; Phase II is scale up manufacturing of any chemicals needed, as well as design and build for the application and detection equipment; and Phase III is a full scale demonstration of the end-to-end detection system.

3.2.1 WARD, Phase I

During Phase I, performers will show proof-of-concept of the overall detection approach proposed in response to this BAA, by demonstrating the ability of their method to detect contamination to the required threshold for two radionuclides – Cobalt-60 and Cesium-137 – on three types of building surfaces – concrete, marble, and granite. This work has five major components. First, performers will refine their proposed approach for identifying and reporting (transducing) the presence of the radionuclide on the building surface. Second, performers will develop a carrier solution that is compatible with this identification/reporting technique. For both activities, performers will carry out a combination of small-scale (benchtop) testing, theory, and simulation as appropriate. Third, they will characterize the performance of their system to show the relationship between the probability of detection and probability of false alarm as a function of the reporting threshold – i.e. they will create a "receiver operating characteristic", or ROC curve, for their approach. This ROC curve will be developed using experimental benchtop measurements and will be supported by a performance model for the detection system, where the performance model will be based on the underlying chemical kinetics and surface physics, and supported by data from the benchtop testing. Performers will also use this performance model to estimate the ROC curve for the remainder of the radionuclides and surfaces of interest in this program. Fourth, performers will use their ROC curve and performance model to refine their overall, end-to-end system design, with particular emphasis on ensuring sufficient signal strength to enable robust detection. Fifth, performers will use the results and lessons learned from Phase I to develop a detailed plan to carry out the work for Phase II (see §3.2.2).

At the end of Phase I, performers will present the results of these activities, including: a refined end-to-end system design; experimental results from the benchtop tests that demonstrate detection of the two radionuclides on the three building surfaces; a ROC curve, based on experimental data and modeling, that shows the relationship between probability of detection and probability of false alarm as a function of reporting threshold; a model of the detection system that can predict system performance, that is

based on the underlying physics and is annotated to describe the physics on which it is based, and that includes a comparison with data from the benchtop tests; an estimate of the system performance for the remaining threat radionuclides and building surface materials; the synthesis pathways for the identification/reporting mechanisms and the carrier solutions; and a detailed plan (SOW, schedule and cost) for Phase II.

One or more performers may be selected to continue into Phase II based on their (proven and estimated) system performance, including the ability of their approach to meet or exceed the program goal for detection and its suitability for use over wide areas; the ability of their performance model to predict the observed measurements; and the appropriateness, clarity and thoroughness of the proposed Phase II plan.

3.2.2 WARD, Phase II

During Phase II, performers will prove the extension of their technique across the remaining radionuclides and building surfaces; demonstrate pilot-batch production of all required components; design and build the application and detector subsystems; and develop and cost the test plan for a full-scale demonstration of the end-to-end detection system during Phase III.

The list of threat radionuclides beyond Cobalt-60 and Cesium-137 is available separately (see §11). In addition to concrete, marble, and granite, the list of building surfaces for which contamination detection must be demonstrated consists of glass, brick, sandstone, slate, paint, steel, aluminum, copper, wood, ceramic, caulk, and rubber. Performers will carry out the first three activities as in Phase I – extending the identification/reporting mechanisms and the carrier solution to the new radionuclides and building surfaces, and extending the ROC curve and performance model (which both require new experimental data). In addition, performers will determine the extent to which their approach for a single radionuclide and building surface material can be multiplexed with those for other radionuclides and/or surfaces.

Second, and in parallel with this effort, performers will develop the approaches required to scale up the production of the identification and reporting mechanisms and the carrier solutions developed during Phase I (i.e. those for Cobalt-60/Cesium-137 and concrete/marble/granite). They will demonstrate the validity and feasibility of their scaled-up process by: (1) producing one-kilogram batches of all of the materials required for their detection system; and (2) showing experimentally its detection performance (ROC curve).

Third, performers will design and build the application and detector subsystems. Performers are responsible for developing the complete subsystems, including any elements not available off the shelf (e.g. specialized detection algorithms, if required). During Phase II they must demonstrate that these subsystems function as required.

Fourth, performers will develop a test plan for a full-scale demonstration of their end-to-end detection system. The precise test location will be determined during Phase II; for the purposes of this PIP, bidders should assume the testing will be done on previously contaminated buildings at a Department of Energy site.

At the end of Phase II, performers will present the results of these activities, including: experimental results from the benchtop tests that demonstrate detection of the complete list of threat radionuclides on the remainder of the surfaces; ROC curves, based on experimental data and modeling, for all combinations of radionuclides and building surfaces; a comprehensive performance model that predicts the system performance for all pairs of (radionuclides, building surfaces), that includes annotations to describe the underlying physical basis and that provides a comparison between model predictions and benchtop test data; the synthesis pathways for the new identification/reporting mechanisms and the carrier solutions, where different from those in Phase I; the synthesis process for the scaled-up production of all required materials (such as the identification, reporting, and carrier components); one-kilogram batches of these materials, produced using the scaled-up production process; experimental results that document the system performance (ROC curve) of these scaled-up materials; the design of the application and detector subsystems, as built; the application and detector prototype devices and a demonstration that they function as required; and a detailed plan (SOW, schedule and cost) for the Phase III demonstration.

Some or all of the performers that successfully complete Phase II are expected to be selected for continuation into Phase III.

3.2.3 WARD, Phase III

A large-scale demonstration of the detection technology will be conducted on contaminated buildings. In addition, performers will complete the scale-up of their detection method to the remaining radionuclides and building surfaces. They will also carry out other acceptance testing as required for Government use, and will develop user manuals (manufacture, operations, maintenance, safety).

3.3 Other Technologies

Bidders may propose technologies that address other aspects of the RDD threat. They should propose a phased approach to proving their technology that is consistent with the approaches described here for RCD and WARD.

4 DELIVERABLES

Performers will provide monthly status reports, due within two weeks of the end of each month; quarterly reports, due every quarter (at the time of the Government quarterly review, if applicable); and a final report, due at the end of each Phase. The monthly status report will briefly summarize the progress of the research activities during the previous month, including major accomplishments as well as any significant difficulties that have been experienced or are expected. It will identify any aspects of the work that are ahead of or behind schedule. It will track the expenditures of funds, by month and cumulatively, and report actual or anticipated cost overruns or underruns. The quarterly reports will provide a more detailed description of all significant progress since the previous quarterly report, describing results, status, and conclusions to date. It also affords the opportunity to suggest modifications to the previously agreed upon SOW,

based on the results to date. The final report will be a cumulative, stand-alone document that describes the work of the entire Phase leading up to it. Performers are also responsible for providing Scientific and Technical Reports (STARs) as applicable for their work funded under this effort, including for all: measurements taken (including the experimental methods, test conditions, and uncertainty estimates); models developed (including the underlying physical basis for the models, assumptions, and experimental data used for calibration or validation); simulation results (including a description of the models/codes used, and the conditions simulated – initial and boundary conditions); formulations developed (including the processes used to make the formulations); and subsystems (design and prototypes). STARs are due at the end of each Phase. Specific aspects of each type of report and other deliverables are identified below.

All reports must be delivered in both print format and editable electronic format; the performer may recommend a preferred format for each deliverable, but the Government will have final approval. Quarterly and final reports will consist of both a written report and a shorter briefing to be presented orally; monthly reports will consist of only a written document (no oral presentation required).

With the exception of any financial information or other exceptions negotiated as described in §7.1.10, all deliverables may be released to outside organizations, both Government and non-Government, in support of efforts to defend against attack by radiological dispersal devices

4.1 Phase I Deliverables

During the first quarter under contract, the performers will refine their proposed approach for capture (RCD) and identification/reporting (WARD) technologies as well as their carrier formulations (RCD and WARD), based on a combination of literature surveys, theoretical investigations, modeling, and early experimental results. The first quarterly report will include a detailed description of the specific synthesis pathways or sources for these technologies that the performers propose to pursue as a result of their first-quarter studies. It will also include a detailed experimental plan to carry out the required screening of these pathways and to provide data to the performance model; this plan will be submitted for Government review and approval.

As part of the second quarterly report, performers must describe their modeling approach in detail, including the underlying physical basis for the model and the set of experimental measurements required to validate it for all threat radionuclides and all building surface materials. As part of this report, WARD performers will describe their progress on the clutter/false alarm problem. Any modifications required in the experimental plan must be identified explicitly.

As part of their final report, performers must present experimental data from their benchtop tests that demonstrate the degree to which their technology decontaminates surfaces (RCD) or detects contamination (WARD) for the subset of threat radionuclides and building surfaces that are the focus of Phase I. WARD performers must present ROC curves, based on experimental data and modeling. Performers must describe the synthesis pathways for the affinity-shifting mechanisms (RCD) or identification/reporting

mechanisms (WARD), as well as the carrier solutions (RCD and WARD). They must present their performance model, annotated to describe its underlying physical basis and to compare the model predictions with the contractors' experimental data. They must use their model to estimate the performance of their approach for the remaining radionuclides and building materials. They must also present a detailed plan (SOW, schedule, and cost) for Phase II.

4.2 Phase II Deliverables

The first quarterly report must include a preliminary systems design for the delivery/collection (RCD) or application/detector (WARD) subsystems, and a functional description of the appropriate procedures for operation and maintenance.

As part of the second quarterly report, performers must present their final designs for their delivery/collection (RCD) or application/detector (WARD) subsystems.

As part of their final report, performers must present experimental data from their benchtop tests that demonstrates the degree to which their technology decontaminates surfaces (RCD) or detects contamination (WARD) for the remainder of threat radionuclides and building surfaces (beyond those shown during Phase I). WARD performers must present ROC curves, based on experimental data and modeling, for all combinations of radionuclides and building surfaces. They must describe the synthesis pathways for the affinity-shifting mechanisms (RCD) or identification/reporting mechanisms (WARD) and the carrier solutions (RCD and WARD), where they are different from those developed in Phase I. They must update their annotated performance model, describing how it has been modified since Phase I and comparing the model predictions with the experimental data for the new threat radionuclides and building surfaces. They must provide one-kilogram batches of all materials in their end-to-end process that are not available off-the-shelf; these must be produced using the synthesis process described. They must provide experimental proof of the decontamination (RCD) or detection (WARD) ability of the materials created using the scaled-up process. They must present their final (as-built) design for the delivery/collection (RCD) or application/detector (WARD) subsystems, and deliver the prototype systems. They must demonstrate the performance of those subsystems. They must provide a notional operation and maintenance manuals for their system. They must also present a detailed plan (SOW, schedule, and cost) for Phase III.

4.3 Phase III Deliverables

As part of their final report, performers will provide a detailed description of the results of the large-scale demonstration, including the test method used and uncertainty estimates. In addition, they will provide users' manuals (manufacture, operations, maintenance, safety) and documentation of any acceptance testing carried out. They will also describe and document all new synthesis processes involved in scaling up production beyond the three building surfaces and two threat radionuclides scaled up during Phase II.

5 RD FUNDING

No specific funding target is provided, although best value to the government will be a selection criterion. The phased approach described in §3 is designed to address the basic feasibility first, before ramping up to lower risk but more costly elements such as large-scale production and the building of prototypes. Bidder costs are expected to reflect this philosophy.

6 RD SCHEDULE

The anticipated schedule is given below. Changes to the solicitation dates will be sent to all organizations that have registered their interest in this BAA. Changes to the post-award dates will be communicated directly to the performers.

6.1 Solicitation Schedule

A Bidder's Conference will be held on 18 March 2003, and participants must register by 14 March 2003 to attend. To be considered for evaluation, proposals must be received by 1600 EST, 21 April 2003. Source selection will be completed in late April 2003, followed immediately by contracting. Kickoff meetings will take place after contracts are in place in late May or early June 2003.

Proposals received after the deadline above may be evaluated at the Government's discretion.

Table 1. Tentative schedule of events and deadlines associated with BAA 03-13.

DATE	EVENT
25 February 2003	FedBizOpps announcement published.
14 March 2003	Registration ends for Pre-proposal Conference.
18 March 2003	Pre-proposal Conference.
21 April 2003	Proposals due.
Late April 2003	Source selection.
May 2003	Contract negotiations.
Late May / Early June 2003	Kickoff meetings.

6.2 Performer Schedule (Major Milestones)

Phase I:

4Q FY03	Kickoff Meetings
1Q FY04	Detailed synthesis approach and experimental plan
2Q FY04	Detailed performance modeling approach
4Q FY04	Phase I final report
4Q FY04	Downselect

Phase II:

1Q FY05	Preliminary design review for delivery/collection subsystems (RCD) and application/detector subsystems (WARD)
2Q FY05	Critical design review for delivery/collection subsystems (RCD) and application/detector subsystems (WARD)
4Q FY05	Phase II final report, kilogram scale batches of chemical compounds and subsystems prototypes

Phase III:

2Q FY06	Demonstration of end-to-end decontamination (RCD) and detection (WARD) systems; Phase III final report and users' manuals

In addition, there will be quarterly reviews with the DARPA Program Manager and Contracting Officer. Teleconferences and other meetings will be scheduled as required.

7 PROPOSAL PREPARATION INSTRUCTIONS

Bidders may submit proposals for both RCD and WARD, but they must be submitted as separate, stand-alone proposals. See §7.1.7 and §7.2.4 for special instructions for those bidders who choose to submit two closely related proposals under these two areas. (Bidders who propose to only RCD or WARD, or who propose to pursue two entirely different strategies for RCD and WARD, may ignore these sections.)

The Government anticipates that awards will be made during the third quarter of the Government fiscal year 2003. Offerors should submit multiple year proposals that span both phases of the program, beginning with a base period of 15 months for Phase I, and follow-on options of 12 months for Phase II and 6 months for Phase III. All data an offeror deems pertinent to a proposal should be submitted with the proposal. Proposals will consist of two volumes: Volume I – Technical Proposal, and Volume II – Cost Proposal. Proposals must be submitted in both print and electronic form, as described in §9.5. Proposals will be prepared in the following format: single sided, 8.5X11 inches, in

at least 12 point type, single spaced with margins not less than one inch. Pages must be numbered sequentially.

NOTICE TO OFFERORS REGARDING CLASSIFIED PROPOSALS: Offerors may not submit completely classified Technical Proposals. Those portions that require classification should be segregated from the main proposal and submitted separately as described in §9.5.

Questions regarding proposal submission should be directed to one of the points of contact listed in §9.4. Offerors are advised that only contracting officers are legally authorized to contractually bind or otherwise commit the Government.

7.1 Volume I – Technical Proposal

Volume I will be no longer than 20 pages in length, not including the sections excluded below. Foldouts are counted as a single page and must be no larger than 11 x 17 inches with no more than five foldouts allowed in the proposal. Only the first 20 pages of Volume I proposals will be evaluated. Proposals with fewer than the maximum number of pages are highly encouraged. Clarity in describing the work to be carried out will be used during the evaluation process as an important indicator of the ability of the proposer to plan and carry out the work.

The following outline describes the minimum requirements for Volume I and must appear in clearly marked form in the order indicated.

a) Cover Page * * Items not included in Volume I page limit
b) Table of Contents *
c) Executive Summary
d) Technical Approach
e) Statement of Work
f) Schedule and Milestones *
g) Deliverables
h) Benefit of Combined RCD and WARD Approach (if relevant) *
i) Description of Resources and Facilities
j) Key Personnel Summary
k) Use of Products
l) Organizational Conflict of Interest *
m) Appendix A *

7.1.1 Cover Page (not included in the Volume I page limit)

The Cover Page must include the following information in the order indicated:

a) BAA number:	BAA03-13
b) BAA title:	Radiation Decontamination
c) Program Element proposed:	RCD or WARD (If companion proposals are being submitted under separate covers, note that here on each proposal)
d) Proposal Title:	(as selected by offeror)

e) Volume I – Technical Proposal
f) Prime Offeror: (name of prime)
g) Subcontractors: (listed, if applicable)
h) Technical Contact: (name, address, phone/fax, electronic mail address)
i) Administrative Contact: (name, address, phone/fax, electronic mail address)
j) Type of Business: (large business, small disadvantaged business, other small business, HBCU or MI, other education, or nonprofit)

7.1.2 Executive Summary

The executive summary will provide an overview of the proposed system and a brief statement of the work required to develop the approach into a working system (through the end of Phase III). Any outstanding features that the offeror believes distinguish the proposal should be clearly and succinctly identified here.

7.1.3 Technical Approach

RCD

a) Affinity-shifting mechanism: The proposal must include a description of the proposed chemical approach for shifting the equilibrium of the radionuclides from the building surface to the carrier solution. This description must include the proposed molecular structure(s) for accomplishing this affinity shift. Bidders should present theoretical, experimental, and/or modeling support for their proposed mechanism, where such support exists. Proposals that do not clearly and explicitly provide material to support the proposed approach will be assumed to be purely speculative.

b) Carrier solutions: The performer must describe the type of formulation proposed to enable the affinity-shifting chemicals to be applied to buildings, to remain on the vertical surfaces during the time required for decontamination, and to keep the captured radionuclide in solution. Theoretical, experimental, and/or modeling support for the proposed approach should be offered, where available.

c) Scale-up synthesis plan: The offeror must provide a notional synthesis plan for the carrier solution components and the affinity-shifting approach. This plan must provide the chemical basis for production of kilogram quantity batches. A more detailed plan will be prepared in Phase I, but bidders must show a realistic approach to scaling up production as part of their proposals.

Note that the technical background provided in the elements above constitute the starting point for the formulation activities proposed in the SOW. Therefore it is important to describe the overall approach and the current state of understanding clearly, since this provides the basis for the work to be proposed for funding (see §7.1.4).

d) Notional delivery/collection subsystem(s): The proposal must include a notional design for the delivery and collection subsystem(s) describing the approximate volume of material delivered and rate at which it is recollected, compatibility with the decontamination materials, compatibility with multi-story buildings, portability, and

power requirements. The proposal must describe all the steps anticipated in the end-to-end decontamination process. Any aspects of the delivery/collection subsystem(s) that the bidder rates as high risk must be clearly identified, and the SOW must include steps to address those risks early.

e) Safety: The proposal must include an evaluation of the safety of the class of materials included in the proposed decontamination method.

WARD

a) Identification/reporting mechanisms: The proposal must include a description of the approaches to be used for identification of the radionuclide and reporting (transduction) of the identification event. The description must specify the chemical basis for identification and reporting and should include theoretical, experimental, and/or modeling support for the proposed mechanisms, where such support exists. Proposals that do not clearly and explicitly provide material to support the proposed approach will be assumed to be purely speculative. Proposals must also address the expected causes of false alarms, as well as possible mitigation strategies to pursue.

b) Carrier solution (if needed): The performer must describe the type of formulation proposed to enable the identification/reporting mechanism to be applied to buildings, and to remain on the vertical surfaces during the time required for detection. Theoretical, experimental, and/or modeling support for the proposed approach should be offered, where available.

c) Scale-up synthesis plan: The offeror must provide a notional synthesis plan for any chemical compounds to carry out the detection process. This plan must provide the chemical basis for production of kilogram quantity batches. A more detailed plan will be prepared in Phase I, but bidders must show a realistic approach to scaling up production as part of their proposals.

Note that the technical background provided in the elements above constitute the starting point for the formulation activities proposed in the SOW. Therefore it is important to describe the overall approach and the current state of understanding clearly, since this provides the basis for the work to be proposed for funding (see §7.1.4).

d) Notional application/detector subsystem(s): The proposal must include a notional design for the detector subsystem (and application subsystem, if required) describing the approximate volume of material delivered, compatibility with the detection materials, compatibility with multi-story buildings, portability, and power requirements. The proposal must describe all the steps anticipated in the end-to-end detection process. Any aspects of the application/detector subsystem(s) that the bidder rates as high risk must be clearly identified, and the SOW must include steps to address those risks early.

e) Safety: The proposal must include an evaluation of the safety of the class of materials included in the proposed detection system.

7.1.4 Statement of Work (SOW)

The offeror will provide a SOW written in plain English, describing the proposed plans to carry out the work under this BAA. The SOW will build on the technical approach described in §7.1.3 and must describe the specific activities the bidders propose in order to carry out the work described in §3. The SOW will be divided into tasks of the bidders' choosing; those tasks should be readily identifiable with the work described in §3. In developing their SOWs, bidders should include experimental, theoretical, and modeling/simulation elements as appropriate. They should take particular care to describe how they will carry out the screening required to finalize their affinity-shifting approach (RCD), their identification/reporting mechanisms (WARD), and their carrier solutions (RCD and WARD). They should address how they plan to systematically handle the work associated with various radionuclides and building surfaces. Proposals should demonstrate the bidders' ability to scale up production to large quantities, and should include a credible approach for carrying out this scale up. Bidders should also describe how they will develop their performance model. Bidders under WARD should carefully describe their plan for developing ROC curves and for determining the importance of environmental clutter; these plans should describe the planned data collection as well as possible clutter-mitigation steps. Bidders should identify any high-risk items and propose a plan to mitigate those risks (or to determine early that they are insurmountable).

The Phase I plan must be specific and detailed. The Phase II and Phase III plans may be outlined more broadly, since detailed versions will be delivered at the end of each preceding Phase.

During the work under this BAA, it is expected that the SOW will evolve. It will be periodically reviewed and updated with Government approval.

7.1.5 Schedule and Milestones (not included in the Volume I page limit)

Proposals will include a schedule for the tasks in the SOW. It will include a graphic illustration showing the major milestones in the SOW arrayed against the proposed time for each task.

7.1.6 Deliverables

Proposals will include a list of deliverables, correlated with the corresponding SOW tasks. At a minimum, offerors should include the deliverables listed in §4.

7.1.7 Benefits of Combined RCD and WARD Approach (if applicable) (not included in the Volume I page limit)

Offerors submitting proposals for both the RCD and WARD elements may identify synergies between them; these might be operational or logistical in nature, or they might simply represent cost savings during the (DARPA-funded) developmental stage. Offerors should identify all benefits that might be possible from combining their RCD and WARD approaches. Bidders must also identify what aspects of the proposed work (SOW tasks, schedule) would change if both proposals were funded. (Cost changes are identified separately in Volume II; see §7.2.4 .)

7.1.8 Resources and Facilities

Offerors will identify all resources to be used in carrying out this work, and will specify the availability of those resources for this work. Proposals must identify the bidders' ability to carry out the experiments proposed with the radionuclides of interest here. When offerors plan to subcontract with outside organizations not part of the proposal, these organizations, their capabilities, and their commitment to providing the needed support must be clearly identified. Any interactions with or agreements with U.S. Government facilities for this purpose must also be identified.

Classified resources available for this work must be explicitly identified.

7.1.9 Key Personnel Summary

Certain skilled, experienced professional and/or technical personnel are essential for successful completion of the work to be performed under this contract. These "Key Personnel" will be identified by name in the proposal, and must include at least one person from each subcontracting organization, as well as the proposed manager of the overall effort. They will be described concisely in a few pages, listing a summary of the qualifications and relevant past efforts of each person, the critical contributions they are expected to make to the effort, their clearance level, and their proposed level of effort. The contractor agrees that such personnel will not be removed from work on this contract or replaced without compliance with the Key Personnel Requirement described in §10.

7.1.10 Use of Products

The U.S. Government will have license rights or ownership of all reports, data, models, equipment, synthesis plans and prototypes that result from this effort. The Government may choose to disseminate some of the reports and results publicly and may discuss them at conferences and at other public and private meetings. The results may form the basis for subsequent BAA, RA, or other solicitations from DARPA or other Government organizations.

The Government expects to retain, at a minimum, Government Purpose Rights (GPR) to all intellectual property (IP) resulting from this effort, including technical data and synthesis plans and device designs, as set forth in DFARS 252.227-7013 and DFARS 252.227-7014. The Government will entertain negotiations for exceptions from GPR, under limited circumstances, as set forth under DFARS 252.227-7013(b) (4) and DFARS 252.227-7014(b) (4). The proposal should include a summary of any previously existing proprietary claims to results, prototypes, or systems that will play a role in this work, and describe what aspects of existing systems will not be divulged to the Government. If there are no proprietary claims this section will consist of a statement to that effect. Any agreement for work resulting from this BAA will require continual supplementation of said proprietary claims summary. In addition, and where appropriate, Volume II of each proposal will have attached to it the information required by DFARS 252.227-7017, IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE RESTRICTIONS (JUN 1995) and/or DFARS 252.227-7028 (JUN 1995) TECHNICAL DATA OR COMPUTER SOFTWARE PREVIOUSLY DELIVERED TO THE GOVERNMENT.

7.1.11 Organizational Conflict of Interest (not included in the Volume I page limit)

Each proposal will contain a section to comply with the following requirements. All awards made under this BAA are subject to the provisions of the Federal Acquisition Regulation (FAR) Subpart 9.5, Organizational Conflict of Interest. All offerors and proposed subcontractors must affirmatively state whether they are supporting any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract number. Affirmations will be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest, as that term is defined in FAR 9.501, must be disclosed. This disclosure will include a description of the action the offeror has taken, or proposes to take, to avoid, neutralize or mitigate such conflict. If the offeror believes that no such conflict exists, then it will so state in this section.

Only those offerors whose proposals are expected to result in contract award will be required to submit a completed and signed copy of "Representations, Certifications, and other Statements by Offerors or Quoters." This document is not required for the submission of a proposal unless specifically requested. Offerors are notified that this document is frequently updated and any offeror selected for award may be requested to submit an updated "Representations, Certifications, and Other Statements by Offerors or Quoters."

7.1.12 Appendix A (not included in the Volume I page limit)

a) PERSONNEL: The proposal will include a list of all personnel identified to work on the proposed activity. This list will include "Key Personnel", as well as other important prime and subcontractor personnel. A concise resume will be provided for each person listed in this section, describing their qualifications, current clearance level, and the amount of effort committed to this work for each contract year. Key Personnel are subject to the conditions set forth in §10.

b) ASSOCIATE CONTRACTOR AGREEMENTS: Proposals will list all sub-contractor and other agreements existing or planned to support this work, including a description of the status of each such agreement.

c) GOVERNMENT FURNISHED PROPERTY/EQUIPMENT: If any portion of the research is predicated upon the use of Government owned resources of any type, the offeror will specifically identify the property or other resource required, the date the property or resource is required, the duration of the requirement, the source from which the resource is required, if known, and the impact on the research if the resource cannot be provided. If no Government Furnished Property is required to conduct the proposed research, this section will consist of a statement to that effect.

7.2 Volume II – Cost Proposal

Cost proposals have no page-length limitations; however, offerors are requested to keep cost proposals to approximately 15 pages. The electronic version of the Cost Proposal must be contained on the same CD-ROM, Zip disk, or diskette that contains the

Technical Proposal, and any electronic spreadsheets must be submitted in a format usable in Microsoft Excel.

The Cost Proposal must contain the following sections, in the order listed:

a) Cover Page
b) Table of Contents
c) Budget Summary
d) Budget Details
e) Details of any cost sharing by the offeror (if proposed)
f) Cost impact of funding both RCD and WARD proposals (if applicable)

In addition, each cost proposal will contain a section that identifies the offeror's Taxpayer's Identification Number (TIN), DFARS 204.7202-3; Corporate and Government Entity (CAGE) code, DFARS 204.7202-1; and Contractor Establishment Code (CEC), DFARS 204.7202-2. The codes provided will be those of the offeror and not of the principal place of performance, if the two are different.

7.2.1 Cover Page

The Cover Page is the same as that for Volume I/Technical Proposal (see §7.1.1), except that item d) will read "Volume II – Cost Proposal".

7.2.2 Budget Summary

Proposals must include a separate budget summary for each program phase. The summary costs for Phase I will be the result of a detailed financial analysis that is provided separately (see §7.2.3); the summary costs for Phases II and II should be the best current estimate, given that the final scope of work for each Phase depends on the results of the preceding Phase.

The budget summary must show, by phase: the cost for each task identified in the SOW of the Technical Proposal, including the manpower levels of effort (labor hours and cost) by task; cost of equipment, travel, G&A, and other expenses. Costs for team members or other subcontractors must be clearly identified under the appropriate tasks, and the net amount proposed for each organization must also be separately and clearly labeled.

7.2.3 Budget Details

The cost to carry out Phase I will be specified in detail, showing the information below by Government fiscal year (October through September). Similarly detailed information will be provided for later Phases as one of the deliverables for the preceding Phases.

a) Labor hours for each labor category, divided into the tasks and subtask areas identified in the SOW, Volume I. Optional tasks/subtask areas must be listed individually and priced separately.
b) Personnel (name or designation, rate in dollars per labor hour, and percent time on project).
c) Total cost by task/subtask identified in the SOW/Volume I.

d) Total cost by labor category, with subtotals for each task.
e) Proposed contractor-acquired equipment, itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, must be provided. Include under "Budget Details" a brief description of the procurement method to be used.
f) Travel costs.
g) Materials costs.
h) Other direct/indirect costs.
i) Subcontractor costs (net)
j) Any other information important for supplementing the Budget Summary for Phase I.

Note that each subcontractor must provide a cost breakdown for Phase I that is similarly detailed. This may be submitted as part of the prime contractor proposal, or it may be submitted directly to the Government (see §9.5); in the latter case, the cover page of the subcontractor's proposal must clearly identify the proposal to which it belongs.

7.2.4 Cost benefits of combined RCD and WARD approach

Offerors that submit related proposals for both the RCD and WARD approach must present information as to how their overall costs will change if both proposals are funded. For example, a single capture molecule synthesis may potentially be used for both elements, allowing for reduced cost.

8 PROPOSAL EVALUATION

8.1 Evaluators

It is the policy of DARPA to treat all proposals as competitive information, and to disclose the contents only for the purposes of evaluation. The Government intends to use non-Government personnel as special resources to assist with the logistics of administering the proposal evaluation and to provide selected technical assistance related to proposal evaluation. Support personnel are restricted by their contracts from disclosing proposal information for any purpose. Contractor personnel are required to sign Organizational Conflict of Interest and/or Non-Disclosure Agreements. By submission of its proposal, each offeror agrees that proposal information may be disclosed to these selected contractors for the limited purpose stated above. Any information not intended for limited release to support contractors must be clearly marked and segregated from other submitted proposal material.

8.2 Evaluation Criteria

Evaluation of RD proposals will be performed using the following criteria, which are listed in descending order of relative importance:

a) Scientific and technical merit
b) Offeror qualifications
c) Cost realism

8.2.1 Scientific and Technical Merit

The most important factor in evaluating the proposals is the scientific and technical merit of the proposed approach and its expected contribution to radiation decontamination and/or detection. The evaluation of merit includes the following specific aspects:

a) Technical merit and expected likelihood of success of the proposed decontamination or detection systems.

b) The breadth/range of radionuclides that can be removed or detected. It is essential that the system be compatible with as many of the potential threat radionuclides as possible.

c) The apparent practicality, feasibility, and safety of the overall system proposed.

d) The feasibility of the synthesis approach to produce kilogram quantities of the needed chemical compounds.

e) Innovation displayed in proposal.

f) Clarity and soundness of proposed SOW, including completeness of plan for Phase I.

8.2.2 Offeror Qualifications

The next most important factor in evaluating the proposals is the demonstrated ability of the offeror's team to successfully carry out the proposed work. The evaluation includes these aspects:

a) The offeror's relevant capabilities and demonstrated experience that indicate ability to carry out the planned work.

b) The offeror's resources and facilities committed to this work, as well as agreements with outside organizations for access to necessary facilities.

c) The selection of key personnel with the skills and experience required to accomplish the tasking and their availability for the duration of the contract.

8.2.3 Cost Realism

Cost will be evaluated to determine whether the offeror's estimate is reasonable and realistic for the technical and management approach offered, as well as to determine the offeror's practical understanding of the effort. Cost reasonableness will be evaluated by assessing the number of labor hours and labor mix proposed as well as the reasonableness of other cost elements (e.g. travel, materials, subcontractors, etc). Cost realism will only be used as an evaluation criterion if there is reason to believe that the offeror has significantly under- or over-estimated costs to complete the effort.

9 ADMINISTRATIVE INFORMATION AND PROPOSAL SUBMISSION

Information announcing and updating this BAA is published on the Federal Business Opportunities website. In addition, an electronic copy of the FBO announcement can be found on the World Wide Web at URL https://dtsn.darpa.mil/spoRD/ under "SPO Solicitations Web Page". If the offeror does not have access to the World Wide Web, a request for the PIP can be emailed to BAA03-13@darpa.mil (subject line: REQUEST PIP); or faxed to (703) 816-5444, (Attn: BAA03-13 PIP Request); or mailed in written form to Booz Allen Hamilton, Suite 600 (Attn: BAA03-13 PIP Request), 3811 Fairfax Drive, Arlington, VA 22203. The message must include the name of the POC, phone number, fax number, and an address to use for surface mail delivery if email is not available. Offerors without access to electronic means of communication should be aware of the increased response time required by surface mail.

This PIP, along with the Federal Business Opportunities (FBO) announcement, constitutes a Broad Agency Announcement (BAA) as contemplated in FAR 6.102 (d)(2)(i). Prospective offerors must refer to this PIP before submitting a proposal. This announcement does not commit the Government to pay for any response preparation cost. The cost of preparing proposals in response to the BAA is not considered an allowable direct charge to any other contract. However, it may be an allowable expense as specified in FAR 31.205-18.

Other information is available as described below.

9.1 Solicitation Registration

All parties interested in participating in this BAA must register their interest by providing the following information for their organization: a principal point of contact, phone number, fax, and email. This information should be emailed to BAA03-13@darpa.mil with the subject line "REGISTER". DARPA will make available to all who register a complete list of the registered organizations and the contact information, unless any organization specifically requests not to be included on such a list.

9.2 Solicitation Website

At the time of registration, each organization will be provided a password for accessing the website for this solicitation. This website will contain regularly updated information about this solicitation, as necessary. It will include a list of Frequently Asked Questions (FAQ) and their answers. And it will include information regarding classified (SECRET) reports available to registered organizations with appropriate security clearances.

9.3 Pre-proposal Conference

DARPA will host a Pre-proposal Conference on 18 March 2003 at ANSER, 2900 South Quincy Street, Suite 800 Arlington, VA 22206 . Each organization that plans to attend this meeting must indicate their intention by email to BAA03-13@darpa.mil, with the subject line, "PRE-PROPOSAL CONFERENCE". In addition, each organization must

provide the names of all planned attendees (using the same email address). Additional instructions will be provided to those who register. Registration to attend this meeting must be received no later than 14 March 2003. Applicants who miss this deadline will be accepted on a space-available basis.

9.4 Contacting DARPA

Technical, contractual, or administrative questions will be answered if they are submitted in writing until one week before proposals are due. They may be submitted through the website after registration or emailed to BAA03-13@darpa.mil with the subject line "BAA03-13 QUESTION". These are the preferred modes for submitting questions. For those without access to electronic communication, faxed or written questions will be accepted at the addresses listed at the beginning of §9. Regardless of how questions are sent to DARPA, the question and its answer (without the name of originator) will be appended to the FAQ file on the solicitation website for viewing by all registered organizations.

In addition, the DARPA program manager will meet privately during the week of 24-28 March 2003 with those bidders who request a private meeting. The purpose of these meetings is not to provide proposal advice to prospective bidders. It is to provide clarification about the intent of this BAA, especially to offerors who will propose solutions fundamentally different from those shown in Figs. 1 and 2, for whom this PIP will not provide full guidance. Topics discussed during these meetings will be considered proprietary and not be made available to others. Meetings may be requested through the solicitation website, using the subject line "MEETING REQUEST". The duration of the meeting may be limited to one hour, depending on the number of prospective bidders who request such a meeting. Bidder's who miss this meeting window may submit written questions as described in the preceding paragraph.

9.5 Submission Process

Offerors must submit an original (paper) proposal consisting of Volumes I and II, five (5) paper copies and an electronic copy on one of the following types of approved fixed media: a single CD-ROM; a single 100 Megabyte (MB) Iomega Zip® disk; or a single 3.5 inch High Density MS-DOS -formatted 1.44 MB diskette. The printed versions must be bound; ring binders will not be accepted. The fixed media must contain the technical proposal in MS Word or HTML format and the cost proposal in MS Excel-readable format; both must reference BAA 03-13. To be considered, proposals must be received by 1600 EST, 21 April 2003. Proposals should be mailed to DARPA, 3701 N. Fairfax, Drive, Arlington, VA 22203, ATTN: Mr. Tom McCreery/BAA 03-13/Document Control.

If appropriate, offerors must segregate out any portion of their proposal that is SECRET and submit that portion separately. Entire proposals that are classified SECRET will not be accepted. The classified portions must contain the facility CAGE code, classified mailing address, and the facility security officer's name and phone number; and must be mailed in accordance with the NISPOM dated January 1995, Section 5-403. The outer wrapping shall be addressed as follows: DARPA/SPO, 3701 N. Fairfax Drive, Arlington,

VA 22203 (ATTN: BAA 03-13). The inner wrapping shall be addressed to: DARPA, 3701 N. Fairfax Drive, Arlington, VA 22203-1714 Attn: Mr. Thomas McCreery. Proposers must provide notification of their intent to submit a classified proposal to BAA03-13@darpa.mil (preferred) or by written letter to Mr. Thomas McCreery (address above).

9.6 Awards

The Government reserves the right to select for award all, some, or none of the proposals received in response to this announcement. Awards may be traditional FAR/DFARS contracts, grants, cooperative agreements, and/or Other Transaction Agreements. The Government is seeking participation from the widest number of offerors. All responsible sources may submit a proposal, which will be considered by the Government. Historically Black Colleges and Universities (HBCU) and Minority Institutions (MI) are encouraged to submit proposals or to team with others in submitting proposals; however, no portion of this BAA is set-aside for HBCU and MI participation, due to the impracticality of reserving discrete or severable areas of technology for exclusive competition among these entities.

10 KEY PERSONNEL REQUIREMENT

If one or more of the key personnel, as defined in §7.1.8, for whatever reason, becomes or is expected to become unavailable for work under this contract for a continuous period exceeding 15 work days, or is expected to devote substantially less effort to the work than indicated in the proposal, the contractor will immediately notify the DARPA PM and the Contracting Officer and, subject to the concurrence of the Contracting Officer or his authorized representative, will promptly replace such personnel with personnel of substantially equal ability and qualifications.

All requests for approval of such substitutions must be in writing and must provide a detailed explanation of the circumstances necessitating the proposed substitutions. They must contain a complete resume for the proposed substitute, and any other information requested or needed by the Contracting Officer to approve or disapprove the proposed substitute. The Contracting Officer, in collaboration with the DARPA Program Manager, will evaluate such requests and promptly notify the contractor in writing of approval or disapproval of the substitution.

If the Contracting Officer determines that suitable and timely replacement is not reasonably forthcoming for key personnel who have been reassigned, terminated, or otherwise become unavailable for the contract, or that resultant reduction of productive effort would be so substantial as to endanger successful or timely completion of the contract, then the contract may be terminated by the Contracting Officer for default or for the convenience of the Government, as appropriate. Or, if the Contracting Officer finds the contractor at fault for the condition, s/he may choose to equitably adjust downward the contract price to compensate the Government for the resultant delay, loss or damage.

11 SECURITY

Due to the fact that portions of the work to be conducted under this BAA will be classified as US SECRET, it is requested that only performers eligible to receive US SECRET security clearances apply for participation in this program. Performers must identify personnel holding US SECRET clearances, or a plan to hire US SECRET cleared personnel, or contract this portion of the work to subcontractors with US SECRET cleared personnel, before the end of Phase I to receive the complete threat list for Phase II. The complete list of threat radionuclides is classified at the collateral SECRET level. These requirements have been outlined in the DARPA Security Classification Guide (SCG-250) associated with this program.